

What is claimed is:

1. An apparatus for optical proximity correction comprising:

5 a data collector configured to collect source data of an electrical circuit pattern;

an edge line detector configured to detect a plurality of edge lines each of which has a size that is less than a line width of the electrical circuit pattern;

10 an edge line modifier configured to modify each of the edge lines so as to prevent an excess optical proximity correction; and

a data synthesizer configured to generate pre-correction data from the modified edge lines and the source data.

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2. The apparatus of claim 1, further comprising a shape analyzer configured to classify a shape formed by adjacent edge lines.

20 3. The apparatus of claim 2, wherein the edge line modifier further comprises a hollow modifier configured to flatten a hollow formed by the adjacent edge lines.

25 4. The apparatus of claim 2, wherein the edge line modifier further comprises a protuberance modifier

configured to flatten a protuberance formed by the adjacent edge lines.

5. The apparatus of claim 2, wherein the edge line  
5 modifier further comprises a steps modifier configured to flatten steps formed by the adjacent edge lines.

6. The apparatus of claim 1, wherein the edge line  
10 modifier further comprises a uniting module configured to unite each of the edge lines and a portion of the electrical circuit pattern.

7. The apparatus of claim 1, further comprising a model  
15 data storage unit configured to storage the source data as model data.

8. The apparatus of claim 7, further comprising an  
optical proximity correction module configured to set  
the model data as a target projection image and correct  
20 the pre-correction data and generate a corrected data.

9. The apparatus of claim 8, further comprising an error  
detector configured to judge whether a simulated  
projection image calculated from the corrected data  
25 fulfills required conditions of the electrical circuit.

10. A computer implemented method for optical proximity correction comprising:

collecting source data of an electrical circuit  
5 pattern;

detecting a plurality of edge lines each of which has a size that is less than a line width of the electrical circuit pattern;

modifying each of the edge lines so as to prevent an  
10 excess optical proximity correction; and

generating pre-correction data from the modified edge lines and the source data.

11. The method of claim 10, further comprising  
15 classifying a shape formed by the adjacent edge lines.

12. The method of claim 11, wherein the modifying of each of the edge lines further comprises flattening a hollow formed by the edge lines.

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13. The method of claim 11, wherein the modifying of each of the edge lines further comprises flattening a protuberance formed by the edge lines.

25 14. The method of claim 11, wherein the modifying of each of the edge lines further comprises flattening

steps formed by the edge lines.

15. The method of claim 10, wherein the modifying of  
each of the edge lines further comprises uniting each  
5 of the edge lines and a portion of the electrical  
circuit pattern.

16. The method of claim 10, further comprising setting  
the model data as a target projection image and  
10 correcting the pre-correction data and generating a  
corrected data.

17. The method of claim 16, further comprising  
determining whether a simulated projection image  
15 calculated from the corrected data fulfills required  
conditions of the electrical circuit.

18. A computer program product for controlling a  
computer system so as to correct an optical proximity  
20 effect, the computer program product comprising:

instructions configured to collect a source data of  
an electrical circuit pattern stored in the computer  
system;

instructions configured to detect a plurality of edge  
25 lines each of which has a size that is less than a line  
width of the electrical circuit pattern;

instructions configured to modify each of the edge  
lines so as to prevent an excess optical proximity  
correction; and

instructions configured to generate pre-correction  
5 data from the modified edge lines and the source data.